4.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This EIR section analyzes the potential for adverse impacts on air quality and greenhouse gas (GHG) emissions resulting from implementation of the proposed project. The Initial Study/Notice of Preparation (IS/NOP [Appendix 1]) identified the potential for impacts associated with confliction with or obstruction of implementation of the applicable air quality plan; violation of air quality standards or substantial contribution to an existing or projected air quality violation; exposure of sensitive receptors to substantial pollutant concentrations; or a cumulatively considerable net increase of criteria pollutants for which the project region is not in attainment. Since the preparation of the IS/NOP, the requirement to address a project's impact on greenhouse gas emissions was added to the CEQA guidelines; therefore, as part of this Subsequent EIR, GHG emissions are also analyzed. Additionally, since the time of preparation of the Draft EIR, the South Coast Air Quality Management District (SCAQMD) has established a new modeling tool, CalEEMod, by which air quality and GHG emissions can be modeled. As such, the proposed project has been remodeled, as part of this Subsequent EIR. Finally, since preparation of the Draft EIR, the *Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* (Sunnyvale) decision was passed, requiring analysis of the existing plus project traffic conditions. As such, the air quality and GHG emissions have been modeled for the existing plus project condition as part of this Subsequent EIR.

Issues that were scoped out from further analysis include the potential for the proposed project to create objectionable odors affecting a substantial number of people. Data used to prepare this section were taken from various sources, including the SCAQMD CEQA Air Quality Handbook, and the 2007 Air Quality Management Plan (AQMP), as amended. Full bibliographic entries for all reference materials are provided in Section 4.2.5 (References) at the end of this section. In addition, Appendix 3 contains the air quality datasheet that was used to calculate data for this section.

All comments received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the proposed project were taken in to consideration during preparation of this Environmental Impact Report, and if relevant, have been addressed in this section or others within this document.

4.2.1 Environmental Setting

Climate

The City of Huntington Beach is located within the South Coast Air Basin (Basin), named so because its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys or basins below. This area includes all of Orange County and the nondesert portions of Los Angeles, San Bernardino, and Riverside Counties. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the Basin is influenced by a wide range of emissions sources such as dense population centers, heavy vehicular traffic and industry, as well as meteorology.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). Coastal areas have a more pronounced oceanic influence, and show less variability in annual minimum and maximum temperatures than inland areas. The City of Huntington Beach is located in northern coastal Orange County, which is in the southern portion of the Basin. The annual average temperature in the City ranges from approximately 47.0°F in December and January to 73.5°F in August.[9]

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin, along the coastal mountain ranges. Average rainfall in the City ranges from approximately 0.02 inch in July to 2.60 inches in January, with an average annual total of 11.65 inches.[10]

The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer.

The vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in the Basin are transported predominantly on-shore into Riverside and San Bernardino Counties. The Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, also disperse air contaminants in the Basin. The Santa Ana conditions tend to last for several days at a time.

Air Quality Background

Air pollutant emissions within the Basin are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually subject to a permit to operate from the SCAQMD, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of point sources are boilers or combustion equipment that produce electricity or generate heat, such as heating, ventilation, and air conditioning (HVAC) units. Area sources are widely distributed and produce many small emissions, and they do not require permits to operate from the SCAQMD. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hairspray, the area-wide use of which contributes to regional air pollution. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are

[9] Western Regional Climate Center, Western Regional Climate Center Home Page, http://www.wrcc.dri.edu (accessed July 26, 2007).
[10] IDcide Local Information Data Server, Huntington Beach, CA Weather, http://www.idcide.com/weather/ca/huntington-beach.htm (access August 3, 2011).

those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles. Mobile sources account for the majority of the air pollutant emissions within the Basin. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

Both federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants," in order to protect public health. The national and state ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort with a margin of safety. Applicable ambient air quality standards are identified later in this section under Thresholds of Significance. The SCAQMD is responsible for bringing air quality within the Basin into attainment with the national and state ambient air quality standards.

The criteria pollutants for which federal and state standards have been promulgated and that are most relevant to air quality planning and regulation in the Basin are ozone, carbon monoxide, fine suspended particulate matter, sulfur dioxide, and lead. In addition, toxic air contaminants are of concern in the Basin. Each of these is briefly described below.

- *Ozone (O_3)* is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- *Carbon Monoxide (CO)* is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Respirable Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)* consists of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Nitrogen dioxide (NO_2)* is a nitrogen oxide compound that is produced by the combustion of fossil fuels, such as in internal combustion engines (both gasoline and diesel powered), as well as point sources, especially power plants. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.
- *Sulfur dioxide (SO_2)* is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

- *Lead (Pb)* occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on road motor vehicles, so the majority of such combustion emissions are associated with off-road vehicles such as racecars. Other sources of lead include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and the use of secondary lead smelters.
- *Toxic Air Contaminants (TACs)* refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Toxic air contaminants are different than "criteria" pollutants in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effects on health tend to be local rather than regional. TACs primarily are concentrated within 0.25 mile of the emissions source, and accepted practice is to analyze TACs when receptors are located within this 0.25-mile radius.

State standards have been promulgated for other criteria air pollutants, including SO_4, hydrogen sulfide, Pb, and visibility-reducing particles. California also recognizes vinyl chloride as a TAC with an undetermined threshold level of exposure for adverse health effects. Vinyl chloride and hydrogen sulfide emissions are generally generated from mining, milling, refining, smelting, landfills, sewer plants, cement manufacturing, or the manufacturing or decomposition of organic matter. California standards for sulfate- and visibility-reducing particles are not exceeded anywhere in the Basin. Pb is typically only emitted during demolition of structures expected to include Pb-based paint and materials, which would not occur as part of the proposed project.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children and people with preexisting lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible sub-groups for ozone effects. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the above-mentioned observed responses. Animal studies suggest that exposure to a combination of pollutants that include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses, and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in

maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to airflow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or if one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated Pb levels in the blood can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause livestock odors poses a big challenge. Offensive livestock odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, the ROGs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

Toxic Air Contaminant Emissions

TACs are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. They include both organic and inorganic

chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different from the "criteria" pollutants previously discussed in that ambient air quality standards have not been established for them.

Greenhouse Gas Emissions and Climate Change Background

Parts of the Earth's atmosphere act as an insulating blanket of just the right thickness, trapping sufficient solar energy to keep the global average temperature in a suitable range. The "blanket" is a collection of atmospheric gases called "greenhouse gases" based on the idea that these gases trap heat like the glass walls of a greenhouse. These gases, mainly water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and chlorofluorocarbons (CFCs), all act as effective global insulators, reflecting visible light and infrared radiation back to earth. Human activities, such as producing electricity and driving internal combustion vehicles, have contributed to the elevated concentration of these gases in the atmosphere. This in turn is causing the Earth's temperature to rise. A warmer Earth may lead to changes in rainfall patterns, smaller polar ice caps, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans.

The relationships of water vapor and ozone as GHGs are poorly understood. It is unclear how much water vapor acts as a GHG. The uncertainty is due to the fact that water vapor can also produce cloud cover, which reflects sunlight away from Earth and can counteract its effect as a GHG. Also, water vapor tends to increase as the Earth warms, so it is not well understood whether the increase in water vapor is contributing to or rather a result of climate change. Ozone tends to break down in the presence of solar radiation but is not understood well enough for evaluation. For these reasons, methodologies approved by the Intergovernmental Panel on Climate Change (IPCC), United States Environmental Protection Agency (USEPA), and the California Air Resources Board (ARB) focus on carbon dioxide, nitrous oxide, methane, and chlorofluorocarbons. The following provides a brief description of each of these GHGs.

Carbon Dioxide

The natural production and absorption of carbon dioxide occurs through the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste, trees, and wood products, and as a result of other chemical reactions, such as those required to manufacture cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. A number of specialized industrial production processes and product uses, such as mineral or metal production, and the use of petroleum-based products, leads to CO_2 emissions.

CO_2 is removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle. Natural sources of CO_2 occur within the carbon cycle where billions of tons of atmospheric CO_2 are removed by oceans and growing plants and are emitted back into the atmosphere through natural processes. When in balance, total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s human activities, including burning of oil, coal, and gas and deforestation, increased CO_2 concentrations in the atmosphere by 35 percent as of 2005.

Methane

Methane is emitted from a variety of both human-related (anthropogenic) and natural sources. Anthropogenic sources include the production and transport of coal, natural gas, and oil, from livestock and other agricultural practices, and from the decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global CH_4 emissions are related to human activities. Natural sources of CH_4 include wetlands, gas hydrates,[11] permafrost, termites, oceans, freshwater bodies, nonwetland soils, and wildfires. CH_4 emission levels from a particular source can vary significantly from one country or region to another. These variances depend on many factors, such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes resulting in CH_4 emissions from both human and natural sources. Also, the implementation of technologies to capture and utilize CH_4 from sources such as landfills, coalmines, and manure management systems affects the emission levels from these sources.

Nitrous Oxide

Concentrations of nitrous oxide also began to rise at the beginning of the Industrial Revolution reaching 314 parts per billion (ppb) by 1998. Microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen, produce nitrous oxide. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to the atmospheric load of N_2O.

Chlorofluorocarbons

Chlorofluorocarbons have no natural source, but were synthesized for uses as refrigerants, aerosol propellants, and cleaning solvents. Since their creation in 1928, the concentrations of CFCs in the atmosphere have been rising. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken, and levels of the major CFCs are now remaining static or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years. Since they are also a GHG, along with such other long-lived synthesized gases as CF_4 (carbontetrafluoride) and sf_6 (sulfurhexafluoride), they are of concern. Another set of synthesized compounds called HFCs (hydrofluorocarbons) are also considered GHGs, though they are less stable in the atmosphere and therefore have a shorter lifetime and less of an impact. CFCs, CF_4, sf_6, and HFCs have been banned and are no longer available. Therefore, these GHGs are not included further in this analysis.

Potential Effects of Global Climate Change

Climate change could have a number of adverse effects. Although these effects would have global consequences, in most cases they would not disproportionately affect any one site or activity. In other words, many of the effects of climate change are not site-specific. Emission of greenhouse gases would

[11] Gas hydrates are crystalline solids that consist of a gas molecule, usually methane, surrounded by a "cage" of water molecules. (U.S. Geological Survey, Gas [Methane] Hydrates—A New Frontier [September 1992], http://marine.usgs.gov/fact-sheets/gas-hydrates/title.html.).

contribute to the changes in the global climate, which would in turn, have a number of physical and environmental effects. A number of general effects are discussed below.

Sea Level Rise and Flooding. The California Climate Change Center predicts that sea level in California would rise between 10.9 to 71.6 centimeters (cm) (0.36 to 2.3 feet) above existing mean sea level (msl) by 2099 as a result of climate change.[12] Measurements taken in the City of Alameda indicate that the current rate of sea level rise is about 0.29 foot per century. Therefore, projected climate change effects on sea level would increase the existing rate of sea level rise by 0.07 to 1.94 feet per century.[13] When combined with astronomical tides, even a 1-foot increase in msl would result in the 100-year event high tide peak occurring at the 10-year event frequency.[14] In other words, the frequency of a current 100-year high tide (about 9.5 feet above current msl) would occur ten times more often if sea levels increase by 1 foot above current msl.

In the future, precipitation events are predicted to vary in terms of timing, intensity, and volume according to many climate change models. Extreme storm events may occur with greater frequency. Changes in rainfall and runoff could affect flows in surface water bodies, causing increased flooding and runoff to the storm drain system.

Water Supply. California Health and Safety Code Section 38501(a) recognizes that climate change "poses a serious threat to the economic well-being, public health, natural resources, and the environment of California," and notes, "the potential adverse impacts of [climate change] include…reduction in the quality and supply of water to the state from the Sierra snowpack." As most of the state, including the City of Santa Monica, depends on surface water supplies originating in the Sierra Nevada, this water supply reduction is a concern.

Most of the scientific models addressing climate change show that the primary effect on California's climate would be a reduced snow pack and a shift in stream-flow seasonality. A higher percentage of the winter precipitation in the mountains would likely fall as rain rather than as snow, reducing the overall snowpack. Further, as temperatures rise, snowmelt is expected to occur earlier in the year. As a result, peak runoff would likely come a month or so earlier. The end result of this would be that the state may not have sufficient surface storage to capture the early runoff, and so, absent construction of additional

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[12] California Climate Change Center, *Projecting Future Sea Level*, A Report from the California Climate Change Center. CEC-500-2005-202-SF. Prepared by D. Cayan, P. Bromirski, K. Hayhoe, M. Tyree, M. Dettinger, and R. Flick. Table 3 (Projected global sea level rise (SLR) (cm) for the SRES A1fi, A2, and B1 greenhouse gas emission scenarios. SLR for A2 and B1 scenarios is estimated by combining output recent global climate change model simulations with MAGICC projections for the ice melt component. SLR estimates for A1fi estimated from MAGICC based on A2 temperature changes scaled according to those in A1fi) (March 2006), p. 19.

[13] California Climate Change Center, *Climate Warming and Water Supply Management in California: White Paper*, A Report from Climate Change Center. CEC-500-2005-195-SF. Prepared by J. Medelin, J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu. Chapter 2 (Potential Impacts of Climate Change on California's Water Resources). Table 2-6 (Relative Sea Level Trends for Eight Tide Gauges Along the Coast of California with 50 Years or More of Record) (March 2006).

[14] California Climate Change Center, *Climate Warming and Water Supply Management in California: White Paper*, A Report from Climate Change Center. CEC-500-2005-195-SF. Prepared by J. Medelin, J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu. Chapter 2 (Potential Impacts of Climate Change on California's Water Resources). Table 2-6 (Relative Sea Level Trends for Eight Tide Gauges Along the Coast of California with 50 Years or More of Record) (March 2006).

water storage projects, a portion of the current supplies would flow to the oceans and be unavailable for use in the state's water delivery systems.

Water Quality. Climate change could have adverse effects on water quality, which would in turn affect the beneficial uses (habitat, water supply, etc.) of surface water bodies and groundwater. The changes in precipitation discussed above could result in increased sedimentation, higher concentration of pollutants, higher dissolved oxygen levels, increased temperatures, and an increase in the amount of runoff constituents reaching surface water bodies. Sea level rise, discussed above, could result in the encroachment of saline water into freshwater bodies.

Ecosystems and Biodiversity. Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep-sea habitat. As temperatures and precipitation change, seasonal shifts in vegetation will occur, potentially affecting the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that "20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2 to 3°C (3.6 to 5.4°F) relative to pre-industrial levels."[15] Shifts in existing biomes[16] could also make ecosystems vulnerable to invasive species encroachment. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts. Climate change may increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects—malaria, dengue fever, yellow fever, and encephalitis.[17] While these health impacts would largely affect tropical areas in other parts of the world, effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency, and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

Potential Effects of Human Activity on Climate Change

The burning of fossil fuels, such as coal and oil, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO_2 concentrations were found to have increased by nearly 30 percent above pre-industrial (c. 1860) concentrations.

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[15] Intergovernmental Panel on Climate Change, *Climate Change 2007: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (Martin L. Parry, Osvaldo F. Canziani, Jean P. Palutikof, Paul J. van der Linden, and Clair E. Hanson, [eds.]) (Cambridge, United Kingdom: Cambridge University Press, 2007).

[16] A biome is a major ecological community classified by the predominant vegetation and hence animal inhabitants.

[17] U.S. Environmental Protection Agency, Climate Change—Health and Environmental Effects (2008), http://www.epa.gov/climatechange/effects/health.html#climate.

The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its global warming potential (GWP), and is expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e), and are often expressed in metric tons (MT CO_2e) or millions of metric tons of CO_2 equivalents (MMT CO_2e).

- **Global Emissions.** Worldwide emissions of GHGs in 2004 were nearly 30 billion tons of CO_2e per year (including both ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes).[18] In 2009, worldwide emissions of GHGs are at 30.3 billion tons of CO_2e, of which the United States accounted for about 18 percent.[19]
- **U.S. Emissions.** In 2004, the United States emitted 7.2 billion tons of CO_2e. Of the four major sectors nationwide—residential, commercial, industrial, and transportation—transportation accounts for the highest percentage of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion. In 2009, the United States emitted 6.6 billion tons of CO_2e, with the electric power industry accounting for the highest emitter of GHGs, approximately 33 percent and transportation and industry as the second and third highest accounting approximately 27 and 20 percent respectively.[20]
- **State of California Emissions.** In 2004, California emitted approximately 483 million tons of CO_2e, or about 6 percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the fourth lowest per-capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states. In 2008, California's GHG emissions were approximately 478 million metric tons CO_2e, generally attributed to the reduced travel and therefore transportation emissions.[21]

  Transportation is the source of approximately 37 percent of the state's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 24 percent, and industrial sources at 19 percent. Residential and Commercial sources account for 9 percent, while agriculture, waste, high GWP compounds, and forestry account for 5.9, 3.3, 1.4, and 0.04 percent respectively.[22]

Various aspects of constructing, operating, and eventually discontinuing the use of industrial, commercial and residential development will result in GHG emissions. Operational GHG emissions result from energy use associated with heating, lighting, and powering buildings (typically through natural gas and electricity consumption), pumping and processing water (which consumes electricity), as well as fuel used

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[18] United Nations Framework Convention on Climate Change, Sum of Annex I and Non-Annex I Countries without Counting Land-Use, Land-Use Change and Forestry (LULUCF). Predefined Queries: GHG total without LULUCF (Annex I Parties) (Bonn, Germany, 2007), http://unfccc.int/ghg_ emissions_data/predefined_queries/items/3814.php (accessed May 2, 2007).

[19] U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008*. EPA# 430-R-10-006 (April 2011).

[20] U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008*. EPA# 430-R-10-006 (April 2011).

[21] California Air Resources Board, *Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions Based on MPO Data* (August 9, 2010).

[22] California Air Resources Board, *Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions Based on MPO Data* (August 9, 2010).

for transportation and decomposition of waste associated with building occupants. New development can also create GHG emissions in its construction and demolition phases in connection with the use of fuels in construction equipment, creation and decomposition of building materials, vegetation clearing, and other activities. However, it is noted that new development does not necessarily create entirely new GHG emissions. Occupants of new buildings are often relocating and shifting their operational-phase emissions from other locations.

Existing Regional Air Quality

Measurements of ambient concentrations of the criteria pollutants are used by the USEPA and the ARB to assess and classify the air quality of each air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national, federal, and state standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment" in that area. If the pollutant exceeds the standard, the area is classified as a "nonattainment" area. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

In 2010 the entire Basin was designated as a national-level nonattainment area for ozone, PM_{10}, and $PM_{2.5}$. It is a national-level extreme nonattainment area for ozone, meaning that national ambient air quality standards are not expected to be met for more than 17 years. The Basin is also a state-level nonattainment area for ozone, PM_{10}, $PM_{2.5}$, NO_X, and lead; it is in attainment of both the national and state ambient air quality standards for SO_2 and CO.

The SCAQMD divides the Basin into thirty-eight source receptor areas (SRAs) in which thirty-two monitoring stations operate to monitor the various concentrations of air pollutants in the region. The City of Huntington Beach is located within SRA 18, which covers the Northern Coastal Orange County area. The ARB also collects ambient air quality data through a network of air monitoring stations throughout the state. These data are summarized annually and are published in the ARB's California Air Quality Data Summaries. The Costa Mesa–Mesa Verde Drive monitoring station is the nearest monitoring station to the project site, and is approximately 5 miles to the east of the proposed project site. This station currently monitors emission levels of ozone, CO, NO_2, and SO_2 but does not monitor the pollutant levels of PM_{10} and $PM_{2.5}$.

Table 4.2-1 (Summary of Ambient Air Quality in the Proposed Project Vicinity) identifies the national and state ambient air quality standards for relevant air pollutants, along with the ambient pollutant concentrations that have been measured at the Costa Mesa–Mesa Verde Drive monitoring station through the period from 2007 to 2009.

According to air quality data shown in Table 4.2-1, the national 1-hour ozone standard has not been exceeded over the last three years in SRA 18, while the state 1-hour ozone standard was exceeded a total of two days over the last three years. The national 8-hour ozone standard was exceeded on one day over the last three years. No national or state standards for CO, NO_2, or SO_2 have been exceeded over the last three years within SRA 18.

Table 4.2-1 Summary of Ambient Air Quality in the Proposed Project Vicinity

Air Pollutants Monitored Within SRA 18—Northern Coastal Orange County Area	*Year*		
	2007	*2008*	*2009*
Ozone (O_3)			
Maximum 1-hour concentration measured	0.082 ppm	0.094 ppm	0.087 ppm
Number of days exceeding state 0.09 ppm 1-hour standard	0	0	0
Maximum 8-hour concentration measured	0.072 ppm	0.079 ppm	0.075 ppm
Number of days exceeding national 0.075 ppm 8-hour standard	0	3	0
Number of days exceeding state 0.07 ppm 8-hour standard	2	6	3
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration measured	0.01 ppm	0.08 ppm	0.07 ppm
Number of days exceeding state 0.25 ppm 1-hour standard	0	0	0
Annual average	0.0132 ppm	0.0132 ppm	0.013 ppm
Does measured annual average exceed national 0.030 ppm annual average standard?	No	No	No
Carbon Monoxide (CO)			
Maximum 1-hour concentration measured	5 ppm	3 ppm	1 ppm
Number of days exceeding national 35.0 ppm 1-hour standard	0	0	0
Number of days exceeding state 20.0 ppm 1-hour standard	0	0	0
Maximum 8-hour concentration measured	3.1 ppm	2.0 ppm	2.2 ppm
Number of days exceeding national 9.5 ppm 8-hour standard	0	0	0
Number of days exceeding state 9.0 ppm 8-hour standard	0	0	0
Sulfur Dioxide (SO_2)			
Maximum 24-hour concentration measured	0.004 ppm	0.003 ppm	0.004 ppm
Number of days exceeding national 0.14 ppm 24-hour standard	0	0	0
Number of days exceeding state 0.04 ppm 24-hour standard	0	0	0

SOURCE: SCAQMD (2010)
PM_{10} and $PM_{2.5}$ concentrations were not measured in the Costa Mesa–Mesa Verde Drive monitoring station or in SRA 18.
ppm = parts by volume per million of air

Local Air Quality

Ambient Air Quality

Motor vehicles are the primary source of pollutants in the project site vicinity. Local emissions sources also include stationary activities, such as space and water heating, landscape maintenance from leaf blowers and lawn mowers, consumer products, and mobile sources. The AES Huntington Beach Generating Station is located approximately 0.5 mile southwest of the proposed project site, which is outside the 0.25-mile radius that TACs are typically considered. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed national and/or state standards for CO are termed "CO hotspots." Section 9.14 of

the SCAQMD's CEQA Air Quality Handbook identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors to CO hotspots. The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors to the proposed project would be children utilizing the Sports Complex to the east, across Goldenwest Street, and residential uses located approximately 800 feet west of the project site. In addition, seniors using the proposed Senior Center would be considered sensitive receptors during operation of the Senior Center.

Localized Carbon Monoxide

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak hour turning volumes to ambient CO air concentrations. For this analysis, localized CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and accepted by the SCAQMD. The simplified model is intended as a screening analysis, which identifies a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations.

Maximum existing CO concentrations were calculated for the intersections evaluated in the project traffic report prepared by Urban Crossroads for the proposed project (Appendix 10) that currently operate at Level of Service (LOS) D or worse, as these intersections indicated the locations of highest potential CO concentrations due to vehicle idling. Only one of the three study intersections currently operates at LOS D or worse (Goldenwest Street and Slater Avenue). The results of these calculations are presented in Table 4.2-2 (Existing Localized Carbon Monoxide Concentrations—Weekday) and Table 4.2-3 (Existing Localized Carbon Monoxide Concentrations—Weekend) for representative receptor locations at 25, 50, and 100 feet from each roadway. These distances were selected because they represent locations where a person may be living or working for one to eight hours at a time. The National 1-hour standard is 35.0 parts per million (ppm), and the state 1-hour standard is 20.0 ppm. The 8-hour national and state standards are both 9.0 ppm.

Table 4.2-2 Existing Localized Carbon Monoxide Concentrations—Weekday

	CO Concentrations in Parts per Million[a, b]					
	25 Feet		*50 Feet*		*100 Feet*	
Intersection	*1-Hour*	*8-Hour*	*1-Hour*	*8-Hour*	*1-Hour*	*8-Hour*
Goldenwest Street and Slater Avenue	6.4	5.2	6.2	5.0	5.9	4.8

SOURCE: Atkins (2007) (calculation sheets are provided in Appendix 3; per discussions with City staff, assumes traffic and distribution in the vicinity of the project site is substantially similar to previous modeling).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Table 4.2-3 Existing Localized Carbon Monoxide Concentrations—Weekend

Intersection	CO Concentrations in Parts per Million[a, b]					
	25 Feet		50 Feet		100 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Goldenwest Street and Slater Avenue	6.1	4.9	5.9	4.8	5.7	4.6

SOURCE: Atkins (2007) (calculation sheets are provided in Appendix 3; per discussions with City staff, assumes traffic and distribution in the vicinity of the project site is substantially similar to previous modeling).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As shown in Table 4.2-2 and Table 4.2-3, under worst-case conditions, existing CO concentrations in the project vicinity do not exceed national or state 1-hour and 8-hour ambient air quality standards. Therefore, CO hotspots do not currently exist near these intersections.

Existing Site Operational Emissions

In order to analyze the existing plus project emissions, the operational emissions for the proposed project site were estimated using CalEEMod. The site is currently undeveloped but is part of the larger Central Park that has daily visitors. As the site is currently not developed, there are no stationary operational emissions generated by the site. As such, the only operational emissions are from vehicle trips passing by the site accessing the larger Central Park. The emissions estimates were determined using CalEEMod default "City Park" trip generation and values for vehicle emission factors. Table 4.2-4 (Existing Net Daily Operational Emissions) summarizes the existing operational emissions.

Table 4.2-4 Existing Net Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day[a]					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Motor Vehicles	0.10	0.07	0.32	0.00	0.08	0.01
Maximum Daily Emissions	0.10	0.07	0.32	0.00	0.08	0.01
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact?	No	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix 3).

4.2.2 Regulatory Framework

Various federal, state, regional, and local government agencies address air quality within the Basin as well as global climate change and GHG emissions. These agencies work jointly, as well as individually, to understand and regulate the effects of GHG emissions and improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for controlling climate change and improving the air quality within the Basin are discussed below.

International/Federal

International Protocols

The United States participated in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol was the first treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol were met, global GHG emissions could have been reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008–2012. The United States has not ratified the Protocol and is not bound by the Protocol's commitments.

Representatives from 170 countries met in Copenhagen in December 2009 to ratify an updated UNFCCC agreement (Copenhagen Accord). The Copenhagen Accord, a voluntary agreement between the United States, China, India, and Brazil, recognizes the need to keep global temperature rise to below 2°C and obligates signatories to establish measures to reduce greenhouse gas emissions and to prepare to provide help to poorer countries in adapting to Climate Change. The Copenhagen Accord is a nonbinding agreement.

Representatives from 194 United Nations member states, including business leaders and nongovernment organizations, met in Cancun, Mexico in December 2010 to participate in the United Nations Climate Change Conference (COP-16). In all, approximately 12,000 participants met to work out the language and reduction targets of a new agreement. The result was the Cancun Agreements, a voluntary agreement similar to the Copenhagen Accord, but with broader UN member nation support. The Cancun Agreements set the stage for the next year's climate conference in Durban, South Africa, where the unresolved issues—including the future of the Kyoto Protocol and a binding agreement—will once again be on the table. The key elements of the Cancun Agreements are as follows:

- Countries agree to keep temperature rise below 2°C above pre-industrial levels and developed countries are urged to make more aggressive emission cut pledges.
- A $30 billion package ("fast-start financing") for 2012 to aid nations taking immediate action to adapt to global warming.
- The creation of a "Global Climate Fund" that will provide financing of $100 million annually for longer-term adaptation and mitigation measures in developing countries (although where this aid will come from is still unresolved). The World Bank was designated as its interim trustee.
- The creation of the forestry program, Reducing Emissions from Deforestation and Forest Degradation, which provides compensation for the preservation of tropical forests in developing countries.
- Specific language and a formal system for monitoring and reporting emissions. This includes a process of "international consultations and analysis" for developing countries that is "non-intrusive, non-punitive, and respectful of national sovereignty," incorporating analysis by technical experts and resulting in a summary report.

The UNFCCC is scheduled to meet again in December 2011 in South Africa to continue deliberating on a treaty to replace the Kyoto Protocol, which ends in 2012.

U.S. Environmental Protection Agency

Air Quality

The USEPA is responsible for setting and enforcing the National Ambient Air Quality Standards for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives.

As part of its enforcement responsibilities, the USEPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the time frame identified in the SIP.

Climate Change

The USEPA is responsible for implementing federal policy to address global climate change. The federal government administers a wide array of public/private partnerships to reduce GHG intensity generated by the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO_2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions.

The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October of 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufactures of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions, with the first annual reports due in March 2011.

On May 13, 2010, the USEPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 MT CO_2e per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold will require a permit after that date.

On November 10, 2010, the USEPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." USEPA's new guidance document is directed at state agencies responsible for air pollution permits under the Federal Clean Air Act to help them understand how to implement new greenhouse gas reduction requirements while mitigating costs for industry. Most states will use USEPA's new guidelines when processing new air pollution permits for power plants, oil refineries, cement manufacturing, and other big pollution point sources.

On January 2, 2011, USEPA implemented the first phase of the Tailoring Rule for GHG emissions Title V Permitting. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and they emit at least 75,000 MT CO_2e per year. Under Phase 1, no sources are required to obtain a Title V permits solely due to GHG emissions. Phase 2 of the Tailoring Rule goes into effect July 1, 2011. At that time new sources are subject to GHG Title V permitting if the source emits 100,000 MT CO_2e per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 MT CO_2e per year.

State

California Air Resources Board

As part of the California EPA, the California ARB is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the ARB conducts research, sets California Ambient Air Quality Standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The ARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels
- By 2020, California shall reduce GHG emissions to 1990 levels
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHGs in California. ARB has determined the statewide levels of GHG emissions in 1990 to be 427 MMT CO_2e. ARB has adopted the Climate Change Scoping Plan, which outlines the state's strategy to achieve the 2020 GHG limit set by AB 32. This Scoping Plan proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve the environment, reduce dependence on oil, diversify energy sources, save energy, create new jobs, and enhance public health.

Part of California's strategy for achieving GHG reductions under AB 32 are the early action greenhouse gas reduction measures, which include the following: a low carbon fuel standard; reduction of emissions from nonprofessional servicing of motor vehicle air conditioning systems; and improved landfill methane capture.[23]

Senate Bill 375

Senate Bill 375 (SB 375), which establishes mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions, was adopted by the State on September 30, 2008. On September 23, 2010, California ARB adopted the vehicular greenhouse gas emissions reduction targets that had been developed in consultation with the metropolitan planning organizations (MPOs); the targets require a 7 to 8 percent reduction by 2020 and between 13 to 16 percent reduction by 2035 for each MPO. SB 375 recognizes the importance of achieving significant greenhouse gas reductions by

[23] California Air Resources Board, *Proposed Early Actions to Mitigate Climate Change in California* (April 20, 2007). http://www.arb.ca.gov/cc/ccea/meetings/042307workshop/ early_action_report.pdf (accessed December 20, 2007).

working with cities and counties to change land use patterns and improve transportation alternatives. Through the SB 375 process, MPOs, such as the Southern California Council of Governments (SCAG), which includes the City of Santa Monica, will work with local jurisdictions in the development of sustainable communities strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces greenhouse gas emissions while meeting housing needs and other regional planning objectives. SCAG's reduction target for per capita vehicular emissions is 8 percent by 2020 and 13 percent by 2035.[24] The MPOs will prepare their first SCS according to their respective regional transportation plan (RTP) update schedule; to date, no region has adopted an SCS. The first of the RTP updates with SCS strategies are expected in 2012.

Senate Bill 97

Senate Bill 97 (SB 97), enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. In March 2010, the California Office of Administrative Law codified into law CEQA amendments that provide regulatory guidance with respect to the analysis and mitigation of the potential effects of GHG emissions, as found in CEQA Guidelines Section 15183.5. To streamline analysis, CEQA provides for analysis through compliance with a previously adopted plan or mitigation program under special circumstances.

Executive Order S-13-08

Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive, provides clear direction for how the state should plan for future climate impacts. The first result is the 2009 California Adaptation Strategy (CAS) report which summarizes the best-known science on climate change impacts in the state to assess vulnerability and outlines possible solutions that can be implemented within and across state agencies to promote resiliency.

California Code of Regulations (CCR) Title 24

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to increase the baseline energy efficiency requirements. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions. The 2008 standards are the most recent version which went into effect in January 1, 2010.

CCR Title 24, Part 11: California's Green Building Standard Code (CALGreen) was adopted in 2010 and went into effect January 1, 2011. CALGreen is the first statewide mandatory green building code and significantly raises the minimum environmental standards for construction of new buildings in California. The Mandatory provisions in CALGreen will reduce the use of VOC emitting materials, strengthen water conservation, and require construction waste recycling.

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[24] California Air Resources Board, *Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions Based on MPO Data* (August 9, 2010).

Regional

South Coast Air Quality Management District

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin. To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

Air Quality Management Plan

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The most recent of these was adopted by the Governing Board of the SCAQMD on June 1, 2007, to update and revise the previous 2003 AQMP. The 2007 AQMP was prepared to comply with the federal and state Clean Air Acts and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet federal and state ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the area into compliance with all federal and state air quality planning requirements.

The 2007 AQMP also addresses several state and federal planning requirements; specifically, the 2007 AQMP is designed to satisfy the California Clean Air Act (CCAA) tri-annual update requirements and fulfill the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2007 AQMP control measures consist of (1) the District's Stationary and Mobile Source Control Measures; (2) California ARB's Proposed State Strategy; (3) District Staff's Proposed Policy Options to Supplement California ARB's Control Strategy; and (4) Regional Transportation Strategy and Control Measures provided by SCAG. Principal control measures of the 2007 AQMP focus on adoption of new regulations for stationary sources and implementation/facilitation of advanced transportation technologies (i.e., zero emission and alternative-fueled vehicles and infrastructure; fuel cell vehicles; heavy-duty electric and hybrid-electric vehicles; and both capital and noncapital transportation improvements). Capital improvements consist of high-occupancy vehicle (HOV) lanes; transit improvements; traffic flow improvements; park-and-ride and intermodal facilities; and freeway, bicycle, and pedestrian facilities. Noncapital improvements consist of rideshare matching and transportation demand management activities derived from the congestion management program.

Programs set forth in the 2007 AQMP require the cooperation of all levels of government: local, regional, state, and federal. Each level is represented in the Plan by the appropriate agency or jurisdiction that has the authority over specific emissions sources. Accordingly, each agency or jurisdiction is associated with specific planning and implementation responsibilities. SCAQMD staff are currently working on the updated AQMP due out in 2012.

Greenhouse Gas Emissions

In order to provide GHG emission guidance to the local jurisdictions within the South Coast Air Basin, the SCAQMD has organized a Working Group to develop GHG emission analysis guidance and thresholds. SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. The tiered approach defines projects that are exempt under CEQA and projects that are within the jurisdiction of and subject to the policies of a GHG Reduction Plan as less than significant. This draft approach has yet to be adopted.

Local

City of Huntington Beach General Plan

Local jurisdictions, such as the City of Huntington Beach, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City of Huntington Beach is also responsible for the implementation of transportation control measures as outlined in the AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the CEQA Air Quality Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction. Applicable goals, objectives, and policies from the Air Quality Element of the General Plan are identified below.

Goal AQ 1 Improve regional air quality by *(a)* decreasing reliance on single occupancy vehicular trips, *(b)* increasing efficiency of transit, *(c)* shortening vehicle trips through a more efficient jobs-housing balance and a more efficient land use pattern, and *(d)* increasing energy efficiency.

Objective AQ 1.8 Reduce particulate emissions from paved and unpaved roads, parking lots, and road and building construction by 50 percent by 2000 as required by Southern California Air Quality Management District.

Policy AQ 1.8.1 Continue to enforce construction site guidelines that require truck operators to minimize particulate emission.

Policy AQ 1.8.2 Require installation of temporary construction facilities (such as wheel washers) and implementation of construction practices that minimize dirt and soil transfer onto public roadways.

Policy AQ 1.8.3 Encourage developers to maintain the natural topography, to the maximum extent possible, and limit the amount of land clearing, blasting, grading, and ground excavation operations needed for development.

Objective AQ 1.9 Minimize sensitive uses (residential, hospitals, schools, etc.) exposure to toxic emissions.

Policy AQ 1.9.1 Assure that sufficient buffer areas exist between a sensitive use and a potential toxic emission source.

Objective AQ 1.10 Reduce the amount of energy consumed by commercial uses by 15 percent by 2000 and 30 percent by 2010. Reduce the amount of energy consumed by residential use by 4.5 percent by 1994 and 30 percent by 2010 as required by Southern California Air Quality Management District.

Policy AQ 1.10.1 Continue to require the utilization and installation of energy conservation features in all new construction.

Consistency Analysis

As mentioned previously, the nearest sensitive receptors to the proposed project would be children utilizing the Sports Complex to the east and residential uses located approximately 800 feet west of the project site. The fields at the Sports Complex are located east of Goldenwest Street, which is elevated above the project site, and further east and south of the associated surface parking lots. Consequently, given the existing distance between the project site and sensitive receptors, development of the proposed project would not conflict with Policy AQ 1.9.1. In addition, seniors using the proposed Senior Center would be considered sensitive receptors during operation of the Senior Center. However, operation of the proposed project would not result in toxic emissions. In addition, this section of the EIR includes measures to reduce the amount of emissions and fugitive dust generated by construction equipment and to reduce energy demand of the proposed land uses. Thus, implementation of the proposed project would not conflict with Policies 1.8.1, 1.8.2, 1.8.3, and 1.10.1.

4.2.3 Air Quality Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the

proposed project would result from construction activities, operation of the proposed senior center facility and project-related traffic volumes. The net increase in project site emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance recommended by the SCAQMD.

Construction Emissions

Construction emissions are calculated by estimating the types and number of pieces of equipment that would be used to grade, excavate, and surcharge the project site, construct the proposed senior center facility, and plant new landscaping within the project site. Construction emissions are analyzed according to the thresholds established by the SCAQMD. The construction activities associated with the proposed senior center facility at the project site would cause diesel emissions, and would generate emissions of dust. Construction equipment within the project site that would generate VOC and NO_X pollutants could include graders, dump trucks, and bulldozers. Some of this equipment would be used during grading activities as well as when the structure is developed on the project site. It is assumed that all construction equipment used would be diesel-powered.

Operational Emissions

Operational emissions associated with the proposed project are estimated using the CalEEMod 2011 computer model developed for SCAQMD and information provided in the traffic study prepared by Urban Crossroads for the proposed project. Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions are generated by the increase in motor vehicle trips to and from the project site associated with operation of the proposed project. Area source emissions are generated by natural gas consumption for space and water heating, and landscape maintenance equipment. To determine if an air quality impact would occur, the increase in emissions was compared with the SCAQMD's recommended thresholds.

Localized CO Concentrations

Localized CO concentrations are calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and utilized by the SCAQMD. As discussed previously, the simplified model is intended as a screening analysis, which identifies a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations. The resulting emissions are compared with adopted national and state ambient air quality standards.

Localized Significance Thresholds for Construction

In addition to the daily air emission thresholds established by SCAQMD, potential localized impacts for certain criteria pollutants with regard to project-related emissions are calculated using a separate method. Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative (I-4). The LST methodology was formally approved by SCAQMD's Mobile Source Committee in February 2005 and updated in October 2008. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are

developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LSTs, which are voluntary, only apply to CO, NO_2, and PM_{10} emissions during construction at the discretion of the lead agency. Screening-level analysis of LSTs is only recommended for project sites that are 5 acres or less. The SCAQMD recommends that projects over 5 acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The total size of the proposed project site is approximately 5 acres. However, because the access driveway leading to the project site is proposed to be constructed with the new senior center, the project was screened for further dispersion modeling using the SCREEN3 model, a screening version of the ISC3 model. SCREEN3 estimates CO, NO_2, PM_{10}, and $PM_{2.5}$ emissions during construction of the proposed project. The screening model results in concentrations that are generally more conservative than output from the ISCST3 model; therefore, if concentrations calculated in SCREEN3 are less than significant, it is assumed they would be less than significant in the ISCST3 model. Dispersion modeling can be done on a voluntary basis by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts at the nearest sensitive receptors. LSTs have been established by the SCAQMD only for construction of projects and do not apply to emissions during operation as localized concentration cannot be properly quantified during operation due to the variable locations of mobile sources, which make up the largest source of criteria air pollutants under operation of the proposed project.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2011 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on air quality if it would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

As the agency principally responsible for comprehensive air pollution control in the Basin, the SCAQMD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the CEQA Air Quality Handbook. These thresholds were developed by the SCAQMD to provide quantifiable levels that projects can be compared to. The City utilizes the SCAQMD's thresholds that are in effect at the time that development is proposed in order to assess the significance of quantifiable impacts. The following quantifiable thresholds are currently recommended by the SCAQMD. The City has identified these SCAQMD thresholds as appropriate for the determination of the significance of impacts.

Construction Emissions

The SCAQMD currently recommends that projects with construction-related emissions that exceed any of the following emissions thresholds should be considered significant. The SCAQMD also recommends that any construction-related emissions from individual development projects that exceed these thresholds be considered cumulatively considerable. These thresholds apply to individual development projects only; they do not apply to the emissions collectively generated by related projects:

- 550 pounds per day of CO
- 75 pounds per day of VOC
- 100 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}
- 55 pounds per day of $PM_{2.5}$

Operational Emissions

The SCAQMD currently recommends that projects with operational emissions that exceed any of the following emissions thresholds should be considered significant. The SCAQMD also recommends that any operational emissions from individual projects that exceed these thresholds be considered cumulatively considerable. These thresholds apply to individual development projects only; they do not apply to the emissions collectively generated by related projects:

- 550 pounds per day of CO
- 55 pounds per day of VOC
- 55 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}
- 55 pound per day of $PM_{2.5}$

In order to assess cumulative impacts, the SCAQMD recommends that projects be evaluated to determine whether they would be consistent with 2007 AQMP performance standards and project-specific emissions thresholds. In the case of the proposed project, air pollutant emissions would be considered to be cumulatively considerable if the new sources of emissions exceed SCAQMD project-specific emissions thresholds.

Effects Not Found to Be Significant

Threshold	Would the project create objectionable odors affecting a substantial number of people?

The project does not propose, and would not facilitate, uses that are significant sources of objectionable odors. Potential sources of odor associated with the proposed project may result from construction equipment exhaust and application of asphalt and architectural coatings during construction activities, and the temporary storage of typical household solid waste (refuse) associated with the senior center (long-term operational) uses. Standard construction requirements would minimize odors from construction. The construction odor emissions would be temporary, short-term, and intermittent in

nature, and impacts associated with construction-generated odors are expected to be less than significant. It is expected that any project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. Therefore, odors associated with the proposed project construction and operation would be less than significant. No mitigation is required, and no further analysis is required in the EIR.

Impacts and Mitigation

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact 4.2-1 The proposed project would provide new sources of regional air emissions, but would not impair implementation of the Air Quality Management Plan.

The 2007 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered to be consistent with the AQMP would not interfere with attainment, because this growth is included in the projections used to formulate the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter of the RCPG are considered consistent with the AQMP growth projections. In turn, projects that are consistent with City's General Plan are considered to be consistent with the Growth Management Chapter, as the General Plan forms the basis for population and employment forecasts in the RCPG. This is because the Growth Management Chapter forms the basis of the land use and transportation control portions of the AQMP.

As residential units are not part of the proposed project, the proposed project would be consistent with the population forecasts of the RCPG. Although implementation of the proposed project would require an amendment to the Central Park Master Plan from low to high intensity recreation area, the proposed project is consistent with the existing General Plan Land Use designation of OS-P. Therefore, while a minimal number of new employment positions would be created with implementation of the proposed project, these jobs have been accounted for by the City's General Plan and the Growth Management Chapter of the RCPG, and the project is thereby consistent with the AQMP. Further, although the proposed project includes a GPA to re-designate the use of the project site from low intensity to high intensity, the GPA itself would not result in direct physical impacts. As the proposed project would not generate residences or employment positions beyond those already projected for in the AQMP, the proposed project would not conflict with implementation of the AQMP and this impact would be ***less than significant***.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.2-2 Peak construction activities associated with the proposed project could generate emissions that exceed SCAQMD thresholds.

Construction activities associated with the proposed project would generally involve two stages: (1) site excavation, grading, and installation of utilities; and (2) construction of the proposed senior center along with landscaping improvements and paving activities.

Because of the construction time frame and the normal day-to-day variability in construction activities, it is difficult, if not impossible, to precisely quantify the daily emissions associated with each phase of the proposed construction activities. Nonetheless, Table 4.2-5 (Estimated Peak Daily Construction Emissions in Pounds per Day) identifies daily emissions that are estimated to occur on peak construction days. These calculations assume that appropriate dust control measures would be implemented during each phase of development as required by SCAQMD Rule 403—Fugitive Dust, and that all other appropriate mitigation (mitigation measures MM4.2-2(a) through MM4.2-2(e)), such as routine equipment maintenance, has been used. Cut and fill activities would occur to a depth of approximately 10 feet during site grading. However, based on this relatively small amount of cut and fill and the size of the project site, all soil is assumed to be kept on site and will not be hauled on or off site. As shown in Table 4.2-5, construction related daily emissions would not exceed SCAQMD significant thresholds.

Table 4.2-5 Estimated Peak Daily Construction Emissions in Pounds per Day

Emissions Source	*Peak Day Emissions in Pounds per Day*					
	VOC	*NO_X*	*CO*	*SO_X*	*PM_{10}*	*$PM_{2.5}$*[a]
2012 (Site Grading, Trenching)						
Maximum Daily Emissions	7.09	52.09	32.97	0.05	5.54	3.02
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2013 (Trenching, Building Construction)						
Maximum Daily Emissions	6.77	38.63	29.55	0.06	3.07	2.47
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2014 (Building Construction, Paving, Architectural Coating)						
Maximum Daily Emissions	69.02	35.65	28.82	0.06	3.39	2.79
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No

SOURCE: Atkins (2011) (CalEEMod output sheets are provided in Appendix 3).

a. Assumes watering of the proposed project site would occur three times per day.

The following standard City requirements (CR) shall be implemented (and complied with prior to issuance of any grading permit) as part of the proposed project to improve air quality emissions generated by construction activities associated with the proposed project.

CR4.2-2(a) *Prior to issuance of any grading permit, the name and phone number of the contractor's superintendent hired by the developer shall be submitted to the Departments of Planning and Public Works. In addition, clearly visible signs shall be posted on the perimeter of the site every 250 feet indicating who shall be contacted for information regarding this development and any construction/grading-related concerns. This contact person shall be available immediately to address any concerns or issues raised by adjacent property owners during the construction activity. S/he will be responsible for ensuring compliance with the conditions herein, specifically, grading activities, truck routes, construction hours, noise, etc. Signs shall include the Developer's contact number regarding grading and construction activities, and "1-800-CUTSMOG" in the event there are concerns regarding fugitive dust and compliance with SCAQMD Rule 403.*

CR4.2-2(b) *Prior to issuance of any grading permit, the Developer shall notify all property owners and tenants within 300 feet of the perimeter of the property of a tentative grading schedule at least 30 days prior to such grading.*

CR4.2-2(c) *Prior to issuance of any grading permit or surcharge activities, the Developer shall demonstrate that the grading/erosion control plan will abide by the provisions of AQMD's Rule 403 as related to fugitive dust control.*

CR4.2-2(d) *During grading, the construction disturbance area shall be kept as small as possible.*

CR4.2-2(e) *Prior to issuance of any grading permit wind barriers shall be installed along the perimeter of the site and/or around areas being graded.*

CR4.2-2(f) *(This CR incorporates Measures Air-1 through Air-8 from the Central Park Master Plan EIR)*

The project developer(s) shall implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. Contract specification language shall be reviewed for inclusion of this language by the City prior to issuance of a grading permit. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation:

- *Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)*
- *Replace ground cover in disturbed areas as quickly as possible*
- *Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content*
- *Water trucks will be utilized on the site and shall be available to be used throughout the day during site grading to keep the soil damp enough to prevent dust being raised by the operations. Water active grading sites at least three times daily*
- *Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period*

- *All trucks hauling dirt, sand, soil, or other loose materials are to be covered, in accordance with Section 23114 of the California Vehicle Code*
- *Sweep streets at the end of the day or as directed by the Department of Public Works*
- *Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip on a gravel surface to prevent dirt and dust from impacting the surrounding areas*
- *Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces*
- *Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved surfaces*

In addition to the standard City requirements listed above, mitigation measures are recommended by SCAQMD to ensure emissions during construction activities would remain below SCAQMD thresholds. Mitigation measures MM4.2-2(a) through MM4.2-2(c) also satisfy certain measures identified in the Central Park Master Plan EIR. The language in these measures has been modified to reflect project-specific components of the proposed senior center where necessary, or for compliance with SCAQMD, although their intent remains the same. The original measures from the Central Park Master Plan EIR appear in Table 4-1 (Mitigation Measures Incorporated from Master Plan of Recreation Uses MMP) of this EIR.

The following recommendations would address potential air quality impacts associated with construction activities, as described above.

MM4.2-2(a) *(This MM incorporates Measure Air-9 from the Central Park Master Plan EIR.)*

The project developer(s) shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction.

MM4.2-2(b) *(This MM incorporates Measure Air-12 from the Central Park Master Plan EIR.)*

The project developer(s) shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes. Contract specification language shall be reviewed by the City prior to issuance of a grading permit.

MM4.2-2(c) *(This MM incorporates Measures Air-10 and Air-11 from the Central Park Master Plan EIR.)*

The project developer(s) shall encourage contractors to utilize alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, electric, and unleaded gasoline) and low-emission diesel construction equipment to the extent that the equipment is readily available and cost effective. Contract specification language shall be reviewed by the City prior to issuance of a grading permit.

MM4.2-2(d) *The project developer(s) shall require by contract specifications that construction operations rely on the electricity infrastructure surrounding the construction sites rather than electrical generators powered by internal combustion engines to the extent feasible. Contract specification language shall be reviewed by the City prior to issuance of a grading permit.*

MM4.2-2(e) *The project developer(s) shall require by contract specifications that the architectural coating (paint and primer) products used would have a VOC rating of 125 grams per liter or less. Contract*

specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a building permit.

These measures would ensure that construction emissions are not greater than predicted in this analysis. Implementation of these City requirements and mitigation measures would reduce construction-related emissions to levels below SCAQMD-recommended thresholds, and daily emissions associated with construction activities would be ***less than significant***.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.2-3 Daily operation of the project would not generate emissions that exceed SCAQMD thresholds.

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities on the project site after occupation. Stationary area source emissions would be generated by the consumption of natural gas for space and water heating devices, and the operation of landscape maintenance equipment. Mobile emissions would be generated by the motor vehicles traveling to and from the project site.

The analysis of maximum daily operational emissions has been prepared utilizing the CalEEMod computer model recommended by the SCAQMD. The results of these calculations are presented in Table 4.2-6 (Project Maximum Daily Operational Emissions).

Table 4.2-6 Project Maximum Daily Operational Emissions

	Emissions in Pounds per Day					
Emissions Source	***VOC***	***NO_X***	***CO***	***SO_X***	***PM_{10}***	***$PM_{2.5}$***
Water and Space Heating	0.05	0.42	0.35	0.00	0.00	0.00
Landscape Maintenance	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	2.69	—	—	—	—	—
Architectural Coatings	0.43	—	—	—	—	—
Motor Vehicles	10.16	9.19	62.11	0.01	0.15	0.15
Maximum Daily Emissions	***13.33***	***19.61***	***62.46***	***0.01***	***0.15***	***0.15***
Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact	No	No	No	No	No	No

SOURCE: Atkins (2011) (CalEEMod output sheets are provided in Appendix 3).

The existing plus project analysis represents the incremental change in emissions from the project compared to the sources currently occupying the project site. Table 4.2-7 (Existing Plus Project Net Daily Operational Emissions) summarizes the existing operational emissions, the estimated project operational emissions, and the incremental increase in emissions from the project. Because the proposed project would be replacing existing park land, the emissions would increase for all pollutants.

Table 4.2-7 Existing Plus Project Net Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Operational Emissions	0.10	0.07	0.32	0.00	0.08	0.01
Project Operational Emissions	13.33	19.61	62.46	0.01	0.15	0.15
Project Increment	***13.23***	***19.64***	***62.14***	***0.01***	***0.07***	***0.07***

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix 3).

As shown, the proposed project would not generate daily emissions that exceed the thresholds of significance recommended by the SCAQMD and this impact would be ***less than significant***.

Threshold Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact 4.2-4 The proposed project would generate increased local traffic volumes, but would not cause localized CO concentrations at nearby intersections to exceed national or state standards.

Project-generated traffic could contribute to decreased levels of service at nearby intersections, resulting in additional vehicle emissions and longer vehicle idling times at and near study area intersections. These circumstances could lead to CO hot spots that may affect adjacent sensitive receptors. The simplified CALINE4 screening procedure was used to predict future CO concentrations at the study area intersections that are projected to operate at LOS D or worse with buildout of the project, as these intersections indicated the locations of highest potential CO concentrations due to vehicle idling. Similar to existing conditions, only one of the three study intersections is projected to operate at LOS D or worse at project buildout (Goldenwest Street and Slater Avenue).

The results of these calculations are presented in Table 4.2-8 (Future with Project Localized Carbon Monoxide Concentrations—Weekday) and Table 4.2-9 (Future with Project Localized Carbon Monoxide Concentrations—Weekend) for representative receptor locations at 25, 50, and 100 feet from the intersection.

Table 4.2-8 Future with Project Localized Carbon Monoxide Concentrations—Weekday

Intersection	CO Concentrations in Parts per Million[a, b]					
	25 Feet		50 Feet		100 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Goldenwest Street and Slater Avenue	6.2	5.0	5.9	4.8	5.7	4.7

SOURCE: Atkins (2007) (calculation sheets are provided in Appendix 3; per discussions with City staff, assumes traffic and distribution in the vicinity of the project site is substantially similar to previous modeling).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Table 4.2-9 Future with Project Localized Carbon Monoxide Concentrations—Weekend

Intersection	CO Concentrations in Parts per Million[a, b]					
	25 Feet		50 Feet		100 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Goldenwest Street and Slater Avenue	5.7	4.7	5.6	4.6	5.5	4.4

SOURCE: Atkins (2007) (calculation sheets are provided in Appendix 3; per discussions with City staff, assumes traffic and distribution in the vicinity of the project site is substantially similar to previous modeling).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As shown, future CO concentrations near this intersection would not exceed national or state ambient air quality standards. Therefore, CO hotspots would not occur near this nor any other intersection within the study area in the future as a result of the proposed project, and the contribution of project traffic-related CO at these intersections would be less than established thresholds. This impact would be ***less than significant***.

Threshold	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact 4.2-5 **The proposed project would increase concentrations of criteria air pollutants in the project vicinity during construction activities, but would not result in or expose sensitive receptors to substantial pollutant concentrations.**

As stated previously, the SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors in the proposed project vicinity that have the potential to be affected by construction activities would be children utilizing the Sports Complex to the east and residential uses located approximately 800 feet west of the project site.

To determine potential criteria pollutant concentrations during construction activities, the SCAQMD has developed LSTs to determine maximum allowable concentrations of CO, NO_2, $PM_{2.5}$, and PM_{10} construction emissions for projects. LSTs do not apply to emissions during operation. For projects greater than 5 acres in total area, dispersion modeling is recommended to determine worst-case pollutant concentration at sensitive receptors associated with construction of the project. Therefore, the proposed project was evaluated using SCREEN3, a screening model for ISCST3. Total worst-case construction emissions for the proposed project are included in Table 4.2-5. These emissions were entered into the SCREEN3 model to identify the maximum daily construction emissions at nearby sensitive receptors. The active area of the park, 130 meters from the project site, was identified as the location of the nearest sensitive receptors. The nearest residential uses are located 220 meters from the proposed project site. Table 4.2-10 (Total Construction Emissions and Localized Significance Thresholds) compares the total worst-case construction emissions at a distance of 100 meters to the state thresholds for CO and NO_2 and the SCAQMD established thresholds for PM_{10} and $PM_{2.5}$. The concentrations at 100 meters would be higher than at 130 meters, so the data provides a conservative estimate. The emissions presented are the sum of the background concentrations plus the project's emissions. As shown in Table 4.2-10, the

proposed project would not result in substantial pollution concentration at sensitive receptors during construction activities. Since construction of the proposed project would not expose sensitive receptors to substantial concentrations of criteria pollutants, this impact would be ***less than significant***. CR4.2-2 and mitigation measure MM4.2-2 would apply to this impact and ensure that criteria pollutants would not exceed SCAQMD established thresholds.

Table 4.2-10 Total Construction Emissions and Localized Significance Thresholds

Air Pollutant	*Maximum Daily Construction Emissions at 100 meters*	*Thresholds of Significance*	*Quantity of Pollutant Exceeding Threshold*	*Significant Impact?*
CO 1- Hour	5.48 ppm	20 ppm	0	No
CO 8-Hour	6.93 ppm	9 ppm	0	No
NO_2	0.96 ppm	0.18 ppm	0	No
PM_{10}	0.48 µg/m^3	10.4 µg/m^3	0	No
$PM_{2.5}$	0.26 µg/m^3	10.4 µg/m^3	0	No

SOURCE: Atkins, 2011; SCREEN3); SCAQMD, 2003. *Localized Significance Threshold Methodology*. Summarized result calculations are provided in Appendix 3.

4.2.4 Cumulative Impacts

Threshold	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

As shown in Table 3-4 (Cumulative Projects), there are four projects located within 1 mile of the proposed project site. SCAQMD's approach to determining cumulative air quality impacts for criteria air pollutants is to first determine whether or not the proposed project would result in a significant project-level impact to regional air quality based on SCAQMD significance thresholds. As discussed in Impact 4.2-2 and Impact 4.2-3, the proposed project would have a less than significant impact for construction and operational emissions. A significant cumulative impact may occur if a project would add a cumulatively considerable contribution of a federal or state nonattainment pollutant. Because the Basin is currently in nonattainment for ozone (for which VOC and NO_X are precursors) and PM_{10} under national and state standards, and is in nonattainment for CO under national standards, projects could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. With regard to determining the significance of the proposed project contribution, the SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project specific impacts; that is, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

As discussed previously in Impact 4.2-2, construction-related daily emissions associated with project development would not exceed SCAQMD significance thresholds during construction activities. Therefore, the emissions generated by construction of the proposed project would not be cumulatively considerable nor would they constitute a substantial contribution to an existing or projected air quality violation. As described above in Impact 4.2-2, compliance with CR4.2-2(a)–(f) and implementation of mitigation measures MM4.2-2(a) through MM4.2-2(e) would reduce these emissions to a less than significant level.

Operation of the proposed project would not generate emissions that exceed the thresholds of significance recommended by the SCAQMD. Thus, the proposed project would not make a cumulatively considerable contribution with regard to criteria pollutants, and this impact would be ***less than significant***.

4.2.5 Greenhouse Gas Project Impacts and Mitigation

Analytic Method

The impact analysis for the Huntington Beach Senior Center Project is based on a GHG emissions analysis, which is presented in the Environmental Analysis, below. GHG emissions associated with the development and operation of proposed project were estimated using the CalEEMod Version 2011.1 software, trip generation data from the project traffic analysis (Urban Crossroads 2007), emissions factors from the California Climate Action Registry, and other sources. The methodology and assumptions used in this analysis are detailed below for construction and operation activities. Refer to Appendix 3 for model output and detailed calculations.

Because the impact each GHG has on climate change varies, a common metric of carbon dioxide equivalents (CO_2e) is used to report a combined impact from all of the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its global warming potential, and is expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions in this analysis are measured in terms of metric tons of carbon dioxide equivalents (MT CO_2e).

Construction

Construction activities can alter the carbon cycle in many different ways. Construction equipment typically utilizes fossil fuels, which generates GHGs such as carbon dioxide, methane, and nitrous oxide. Methane may also be emitted during the fueling of heavy equipment. The raw materials used to construct new buildings can sequester carbon; however, demolition of structures can result in the gradual release of the carbon stored in waste building materials as those materials decompose in landfills. Since the exact nature of the origin or make-up of the construction materials is unknown, construction related emissions are typically based on the operation of vehicles and equipment during construction.

Construction is a temporary source of emissions necessary to facilitate development of the proposed project. Although these emissions are temporary, they must be accounted for, as the impact from the emissions of GHGs is cumulative. Based on current SCAQMD methodology, GHGs emitted during construction are amortized over an estimated 30-year project lifetime.

Operation

The following activities are typically associated with the operation of residential, retail, and commercial land uses that will contribute to the generation of GHG emissions:

- **Vehicular trips**—Vehicle trips generated by the proposed project would result in GHG emissions through combustion of fossil fuels. Carbon dioxide emissions were determined based on the trip rates provided in the traffic analysis. Methane and nitrous oxide emissions were estimated using the total vehicle miles traveled as determined by CalEEMod and USEPA emission factors for on-road vehicles.
- **On-site use of natural gas and other fuels**—Natural gas would be used by the proposed project for heating of the center, resulting in a direct release of GHGs. The use of landscaping equipment would also result in on-site GHG emissions. Estimated emissions from the combustion of natural gas and other fuels are based on the square footage of nonresidential buildings and estimates provided in Section 4.13 (Utilities/Service Systems) of this EIR. Estimates of emissions from the combustion of fossil fuels from landscaping activities were determined based on the square footage of nonresidential land uses as presented in the CalEEMod modeling output.

  GHG emissions associated with building envelope energy use vary based on the size of structures, the type and extent of energy-efficiency measures incorporated into structural designs, and the type and size of equipment installed. Complete building envelope details could not be incorporated into the project inventory, as such information was not available at the time of the analysis. Therefore, it was assumed that the building envelopes would comply with the current minimal standards for all business-as-usual (BAU) analysis and for new development in Bergamot Station development.
- **Electricity use**—Electricity is generated by a combination of methods, which include combustion of fossil fuels. By using electricity, the proposed project would contribute to the indirect emissions associated with electricity production. Estimated emissions from the consumption of electricity are based on the square footage of nonresidential building use and consumption estimates provided in Section 4.13 of this EIR. The emissions associated with the electricity consumption were calculated using an emission factor specific to Southern California Edison, the electricity provider for Huntington Beach.
- **Water use and wastewater generation**—California's water conveyance system is energy-intensive, with electricity used to pump and treat water. The proposed project would contribute to indirect emissions by consuming water and generating wastewater. Estimated emissions from the consumption of potable water and the generation of wastewater are based on the square footage of nonresidential buildings and the demand factors provided in Section 4.13 of this EIR. The water consumption and wastewater generation equates to electricity used to pump and treat the water as well as fugitive emissions from the wastewater treatment process.
- **Solid waste**—Disposal of organic waste in landfills can lead to the generation of methane, a potent greenhouse gas. By generating solid wastes, the proposed project would contribute to the emission of fugitive methane from landfills, as well as CO_2, CH_4 and N_2O from the operation of trash collection vehicles. Estimated emissions from the generation of solid waste are based on the square footage of nonresidential building use and the generation factors provided in Section 4.13 of this EIR.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2011 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on greenhouse gas emissions if it would do any of the following:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases

OPR released draft CEQA guideline amendments for GHG emissions to the Natural Resources Agency on April 14, 2009. On December 31, 2009, consistent with the governing statutory deadline, the Natural Resources Agency certified and adopted the CEQA guideline amendments required by SB 97. The amendments encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

According to CEQA Guidelines Section 15152, an individual project may tier its analysis from program level or "first-tier" documents. Specific to climate change, CEQA Guidelines Section 15183.5 describes the ability of an individual project to tier the analysis of greenhouse gas (GHG) emissions from a plan for the reduction of GHG emissions. The tiering process entails agency adoption of programs, plans, policies, or ordinances from a program level EIR which focuses on the 'big picture' and then using the information to streamline the CEQA review process for individual projects that are consistent with the goals of the program level EIR.

The California ARB adopted the Scoping Plan to address GHG emissions within the state by providing programs and measures to reduce CO_2e emissions by 169 MMT, bringing the state's GHG emissions down to 1990 levels by year 2020. In the Scoping Plan, ARB makes the following recommendation for local governments:

> Local Government Targets: In recognition of the critical role local governments will play in the successful implementation of AB 32, ARB added a section describing this role. In addition, ARB recommended a greenhouse gas reduction goal for local governments of 15 percent below today's levels by 2020 to ensure that their municipal and community-wide emissions match the state's reduction target.

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Orange County area. In order to provide GHG emission guidance to the local jurisdictions within the South Coast Air Basin, the SCAQMD organized a Working Group to develop GHG emission analysis guidance and thresholds. SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. The tiered approach defines projects that are exempt under CEQA and projects that are within the jurisdiction of, and subject to, the policies of a GHG Reduction Plan as less than significant, and provides a 10,000 MMT CO_2e threshold for industrial processes.

The Working Group is continuing the task of developing GHG thresholds for non-residential land uses. In September 2010, the Working Group proposed a draft tiered approach that addresses significance for non-residential land uses as follows:

- **Tier 1:** Categorical or statutory exemption. These projects need not evaluate GHG emissions.
- **Tier 2:** Consistent with GHG reduction plan. Tier 2 projects that are consistent with a qualified GHG reduction plan would result in a less than significant impact for a project.
- **Tier 3:** Non-residential only project. For projects that include only commercial uses, a 1,400 MT CO_2e/year threshold is proposed as a screening value. Projects that result in less than 1,400 MT CO_2e per year would result in a less than significant impact.
- **Tier 4:** Performance Standards. A performance standard of 4.8 MT CO_2e/year/SP (SP = Service Population = number of residents plus employees) for project level emissions in the year 2020 was established. A performance standard 3.0 MT CO_2e./year/SP was established for the year 2035. Projects that exceed the Tier 3 threshold but meet or exceed the Tier 4 performance standards would result in a less than significant impact.

Neither Tier 1 nor Tier 2 would apply to the proposed project, as there are no currently adopted qualified City (Huntington Beach) or County (Orange) reduction plans.

For the purposes of this analysis and based on full consideration of the available information, non-residential projects that meet the following criteria will be determined to have a less than significant impact with respect to the emissions of greenhouse gases:

- The individual project must limit the emissions of greenhouse gases to 1,400 metric tons CO_2e annually or less, pursuant to SCAQMD's draft GHG emissions threshold for non-residential project-level analysis.
- The individual project must comply with the plans and policies the AB 32 Scoping Plan adopted by California ARB for the purpose of reducing the emissions of greenhouse gases.

Effects Not Found to Be Significant

No effects have been identified that would not have an impact with respect to GHG emissions and climate change.

Impacts and Mitigation Measures

Threshold	Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact 4.2-6 **Implementation of the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. This would be a *less than significant* impact.**

Development of the proposed project would generate greenhouse gases through the construction and operation of a new senior center. Greenhouse gas emissions from the proposed project would specifically arise from sources associated with project operation, including direct sources such as motor vehicles, and natural gas consumption, and indirect sources such as solid waste handling and treatment and electricity generation. Emissions from these operational sources are estimated and presented below.

Following the SCAQMD recommendations, construction emissions would be amortized over an anticipated 30-year structure lifetime and added to the operational emissions to provide an average annual emissions estimate. Table 4.2-11 (Estimated Annual Emissions) shows the estimated GHG emissions for the construction and operation of the proposed project with the incorporation of all state policies and mitigation measures listed below. Detailed assumptions and emission calculations are included in Appendix 3.

Table 4.2-11 Estimated Annual Emissions

Emission Source	*Metric Tons CO_2e*
Amortized Construction [a]	33.9
Area Source [b]	0.00
Energy	147.1
Mobile	179.9
Solid Waste	12.2
Water Use	11.0
Total	***384.1***
SCAQMD Draft Threshold MT CO2e	1,400
Significant?	No

SOURCE: CalEEMod 2011.1.1 was used to determine all emissions. CalEEMod output is included in Appendix 3.

a. Total construction emissions are 1,015.92 metric tons CO_2e.

b. Area Source emissions include only emissions from landscaping equipment.

The implementation of state mandated regulations would result in the reduction of GHG emissions. Because the transportation and energy measures described below are embedded in the CalEEMod model, the associated emissions reduction cannot be quantified. The emissions reductions associated with the water and waste measures are indicated below. The following state regulations were included in the calculation of the proposed project's annual emissions:

State Regulations

Transportation

- *Assembly Bill 1493: Pavley I & Pavley II: Assembly Bill (AB) 1493 (Pavley) required the ARB to adopt regulations that will reduce GHG from automobiles and light-duty trucks by 30 percent below 2002 levels by the year 2016, effective with 2009 models.*
- *Executive Order S-1-07 (Low Carbon Fuel Standard): The Low Carbon Fuel Standard (LCFS) requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.*
- *Tire Pressure Program: The AB 32 early action measure involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications.*
- *Low Rolling Resistance Tires: This created an energy efficiency standard for automobile tires to reduce rolling resistance.*
- *Low Friction Engine Oils: This AB 32 early action measure would increase vehicle efficiency by mandating the use of engine oils that meet certain low friction specifications.*

- *Cool Paints and Reflective Glazing: This AB 32 early action measure is based on measures to reduce the solar heat gain in a vehicle parked in the sun.*
- *Goods Movement Efficiency Measure: This AB 32 early action measure targets system wide efficiency improvements in goods movement to achieve GHG reductions from reduced diesel combustion.*
- *Heavy-Duty Vehicle Emission Reduction: This AB 32 early action measure would increase heavy-duty vehicle (long-haul trucks) efficiency by requiring installation of best available technology and/or ARB approved technology to reduce aerodynamic drag and rolling resistance.*
- *Medium and Heavy Duty Vehicle Hybridization: The implementation approach for this AB 32 measure is to adopt a regulation and/or incentive program that reduce the GHG emissions of new trucks (parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks) sold in California by replacing them with hybrids.*

Energy

- *AB 1109 Energy Efficiency Requirements for lighting: Assembly Bill (AB 1109) mandated that the California Energy Commission (CEC) adopt energy efficiency standards for general-purpose lighting. These regulations, combined with other state efforts, shall be structured to reduce statewide electricity and natural gas consumption.*
- *Electrical Energy Efficiencies: This measure captures the emission reductions associated with electricity energy efficiency activities included in ARB's AB 32 Scoping Plan that are not attributed to other R1 or R2 reductions as described in this report. This measure includes energy efficiency measures that ARB views as crucial to meeting the state-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards"), etc.*
- *Natural Gas Energy Efficiencies: This measure captures the emission reductions associated with natural gas energy efficiency activities included in ARB's AB 32 Scoping Plan that are not attributed to other R1 or R2 reductions, as described in this report. This measure includes energy efficiency measures that ARB views as crucial to meeting the state-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards") etc.*

Water

- *California Green Building Code: Reduction of indoor water consumption beyond business-as-usual by 20 percent is mandatory for residential and nonresidential development. This measure reduces the proposed project's annual emissions by 2.59 MT CO_2e.*

Waste

- *The California Integrated Waste Management Board requires 50 percent diversion rate for all local jurisdictions. This measure reduces the proposed project's annual emissions by 12.18 MT CO_2e*

Existing Plus Project Analysis

The existing plus project analysis compares the project's incremental contribution to existing emissions. In this case, the project would be built on a currently vacant, undeveloped site in Central Park. Table 4.2-12 (Existing Plus Project Annual Operational Emissions) presents the existing site's operational emissions, the proposed project emissions, and the increase in emissions from the proposed project over existing conditions. The project's annual emissions are estimated to be 361.3 metric tons CO_2e above the annual emissions from the existing project site. The greatest emissions increase is from

mobile sources while the project would provide fewer emissions attributable to water use. The proposed project's emissions are much greater than emissions resulting from activities on the existing site; however, the total proposed project's emissions would still be below the draft SCAQMD threshold for non-residential projects. The state regulations and SCAQMD measures described above, and included in the calculation of the proposed project's emissions, ensure that the proposed project's GHG emissions would result in a ***less than significant*** impact. No mitigation is required.

Table 4.2-12 Existing Plus Project Annual Operational Emissions

Emission Sources	*Existing MT CO_2e*	*Project MT CO_2e*	*Increase MT CO_2e*
Amortized Construction	-	33.9	33.9
Area Source	-	0.00	0.00
Energy	-	147.1	147.1
Mobile	9.9	179.9	170.0
Solid Waste	0.2	12.2	12.0
Water Use	12.7	11.0	-1.7
Total	***22.8***	***384.1***	***361.3***

SOURCE: CalEEMod 2011.1 was used to determine all emissions. CalEEMod output is included in Appendix 3.

Threshold	Would the proposed project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact 4.2-7 **Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This would be a *less than significant* impact.**

AB 32, The Global Warming Solutions Act of 2006, establishes California's target to reduce emissions back to 1990 levels by the year 2020. The SCAQMD draft CEQA thresholds for GHG emissions were developed following AB 32 in order to aid the state in reaching this target. The CEQA threshold was developed to evaluate a project's GHG emissions as well as its consistency with AB 32. Therefore, the analysis provided in Impact 4.2-6 also analyzes the proposed project's consistency with AB 32. Since the project's emissions are below the SCAQMD threshold, this project is consistent with AB 32.

The proposed project is consistent with AB 32, the statewide policy for reducing GHG emissions. As the project is consistent with this policy, this impact is considered ***less than significant***, and no mitigation is required.

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